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ABSTRACT

College students' expectations regarding the physiological, psychological, and social effects of marijuana were investigated. A sample of 210 undergraduates stated their expectations about the effect of the drug by answering a series of structured-response type questions. Also, Ss provided background information related to their expectations about marijuana. Overall, the data suggest that students' expectations about the effects of marijuana were largely contrary to research findings and tended to discount potentially harmful consequences of the drug. Marijuana use was considered an educational issue, and decriminalization of it was strongly favored. Users, occasional users, and nonusers differed significantly in expectations about marijuana effects which lent support to hypotheses based on the theory of cognitive consistency. Of interest were sex differences on selected background variables. Women as compared to men seemed to hold more disapproving attitudes about the use of marijuana, reported greater difficulties in obtaining the drug, used it less frequently, and knew fewer marijuana smokers. Expectations about marijuana should be taken into account when trying to develop relevant drug education programs. (Author/JLL)

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MARIJUANA: COLLEGE STUDENTS' EXPECTATIONS

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ABSTRACT

The focus of this investigation was on college students' expectations regarding the physiological, psychological, and social effects of marijuana. A sample of 210 undergraduates stated their expectations about the effect of the drug by answering a series of structured-response type questions. Also, Ss provided background information related to their expectations about marijuana. Overall, the data suggest that students' expectations about the effects of marijuana were largely contrary to research findings and tended to discount potentially harmful consequences of the drug. Marijuana use was considered an educational issue and decriminalization of it was strongly favored. Users, occasional, and non-users differed significantly in expectations about marijuana effects which lent support to hypotheses based on

the theory of cognitive consistency. Of interest were sex differences on selected background variables. Women as compared to men seemed to hold more disapproving attitudes about the use of marijuana, reported greater difficulties in obtaining the drug, used it less frequently, and knew fewer marijuana smokers. Educational implications were discussed.

INTRODUCTION

The heightened interest in marijuana by young people is evident from a series of university studies conducted at the University of Maryland. There, marijuana use has risen from 15% in 1967 to 63% in 1973 (1). Confirmatory data by Yankelovich (2) show that 64% of all college students in the USA have tried marijuana "at least once or twice." Apparently, marijuana use by college students more than quadrupled over a ten year period. Why?

Because expected effects of marijuana have been found to influence reactions to the drug (3-6) is seemed reasonable that an examination of students' expectations might provide a clue to the appeal of marijuana. Within the context of this investigation, expectations about the effects of mari-

juana refer to beliefs regarding the likely consequences of the drug use.

The following specific questions were explored: 1) What are students' expectations about the physiological, psychological, and social effects of marijuana. 2) To what extent are students' expectations about physiological and psychological effects of marijuana in accord with marijuana research findings? 3) How do expectations about the effects of marijuana by regular users compare with expectations by occasional users or non-users?

Cognitive consistency (7-8) would suggest a link between an individual's belief system and overt behavior reflecting acceptance of these beliefs (9-10). Accordingly, it was predicted that regular marijuana users as compared to occasional users or non-users tend to have fewer expectations about the drug that are in agreement with research findings (prediction I). A corollary assumption was that regular marijuana users as compared to occasional users or non-users are likely to hold fewer expectations about harmful effects of marijuana (prediction II). Finally, consistent with their practices, regular marijuana

users would tend to advocate a liberal stance by society vis à vis marijuana use. The third prediction, then, was that regular users as compared to occasional users or non-users are likely to hold more liberalized social expectations about marijuana (prediction III).

Operationally defined, "regular user" smoked marijuana regularly at least once or twice a week; "occasional user" experimented with the drug on one or two occasions; "non-user" had never tried the drug.

PROCEDURE

A two-part opinionaire was specially prepared for this investigation. Part I sought information on variables that have been found to play a role in marijuana research, i.e.: sex, age, marital status, years in college, attitude toward marijuana, and experiences students had in obtaining and using the drug. Also, reasons for smoking marijuana were explored.

Part II of the instrument contained structured-response type questions that were grouped into three categories, A-physiology, B-psychology, and C-sociology. Categories A-physiology and B-psychology each were comprised of ten

items that dealt with the effects of marijuana on the body and mind respectively. Content for these items was based on current marijuana research findings and was drawn from such sources as the Annual Reports on Marijuana to the United States Congress by the National Institute on Drug Abuse (11-14), Annals of the New York Academy of Sciences (15), etc.

Category C-sociology consists of ten items that deal with social issues and problems related to marijuana use. Specifically, the first six items are concered with how society should deal with the use of marijuana and the last four items inquire into the possible consequences of legalizing the drug.

The opinionaire was administered to 210 day session undergraduates who volunteered to participate anonymously in this study. Of the respondents, one hundred and fifty (50 males and 100 females) were enrolled at a large eastern, urban university, while sixty (20 males and 40 females) were enrolled at a small private suburban college.

Students' expectations about marijuana were evaluated as follows. To determine perceptions of how marijuana acts,

respondents were asked to reply to each category item with either 'yes', '?', or 'no'. These choices were tabulated and their relative frequencies computed.

A research expectation score (Er-score), limited to categories A-physiology and B-psychology, was developed for the purpose of comparing student expectations about the effects of marijuana with research findings. The total number of 'yes' or 'no' choices in agreement with scientific knowledge constituted a person's Er-score. Items answered with a question mark choice were disregarded. Since, at the time of this investigation consistent evidence was lacking for category item B-3 (impairs academic achievement) and B-6 (decreases motivation) these two items were eliminated from the data analysis. Accordingly, the highest possible Er-score was 18.

The third measure, the harmful expectation score (Eh-score), was based upon responses to fifteen of the twenty items in categories A-physiology and B-psychology which were judged to have deleterious connotations (16). A person's harmful expectation score was calculated by adding the number of 'yes' or 'no' choices in accordance

with these fiften items. Again, items answered with a question mark choice were disregarded. The highest possible Eh-score was 15.

The fourth measure of student beliefs about marijuana was the social expectation score (Es-score) which was based on six of the ten items in category C-sociology considered to best represent a liberalized view toward marijuana. The number of response choices in agreement with the liberal social expectations constituted a person's Es-score; the highest possible total Es-score was 6. Once more, items answered with a question mark choice were eliminated from the calculation.

Score reliability as determined by Cronbach's alpha (17), was found to be .66 for the Er-score, .72 for the Eh-score, and .76 for the Es-score.

RESULTS

The first question answered was "What are students' expectations about the physiological, psychological, and social impact of marijuana?" Absolute and relative frequencies of responses were calculated for each of the thirty items that comprised these three categories. The

following highlights expectations that were contrary to research findings. For instance, students (68.6%) rejected the idea that taking marijuana can lead to tolerance for the drug and seemed unaware that marijuana lowers body temperature (66.2%). Two out of three students (69.5%) disagreed that marijuana can impair the rate of learning or lead to psychological dependency on the drug (64.8%). Respondents either doubted (29.0%) or disagreed (26.2%) that smoking marijuana has the effect of changing brain wave activities. That marijuana can trigger depression and psychotic reactions was rejected by about fifty percent of the students, 56.2% and 49.5% respectively. Apparently, students expectations about marijuana excluded some potentially harmful physiological and psychological effects of the drug.

With regard to social expectations, eight out of ten students (80.5%) believed the use of marijuana should not be regarded as a criminal offense. Although seven out of ten individuals (70.0%) considered taking marijuana to be a personal matter, they nevertheless, did not think society should disregard the issue (75.7%). Almost two thirds

of the students (60.0%) thought the use of marijuana should be dealt with as an educational issue. Using marijuana was not considered a health menance by about two thirds of the respondents (62.4%) and more than half of them (53.3%) favored legalizing the drug. Students were divided on the issue whether legalization would increase (43.8%) or not increase (43.3%), the use of marijuana. The majority expected that legalization would not accelerate the use of other drugs such as alcohol (74.3%) or hard drugs (65.7%).

To assess the significance of the differences among responses of the four subgroups (urban males, urban females, suburban males, suburban females), chi square values were calculated for each of the thirty items that constituted categories A-physiology, B-psychology, and C-sociology. Results showed no statistically significant chi square values for any one of the thirty items.

The second purpose of this investigation was to examine the extent to which students' expectations about the physiological and psychological effects of marijuana were in agreement with research findings. Table I presents means and standard deviations of the expectations scores for the

total sample and the four subgroups.

Table I

Means and Standard Deviations of Expectation Scores for Four Subgroups

(N=210)

Subgroup		*Er-score		**Eh-score		***Es-score	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
urban males (UM)	50	7.54	3.36	5.66	3.24	4.34	1.81
urban females (UF)	100	9.07	3.08	6.83	2.84	3.53	2.05
suburban males (SM)	20	8.75	2.71	6.85	2.58	3.90	1.97
suburban females (SF)	40	7.85	3.04	6.55	2.89	3.73	2.20
Total	210	8.44	3.16	6.50	2.95	3.80	2.03

*Research expectation score
**Harmful expectation score
***Social expectation score

To test for differences among the subgroups, an analysis of variance was used with Er-score as the dependent variable and Sex and Institution as the independent variables. Nonsignificant F values were obtained for Sex (F=3.37, df=1) and Institution (F=.75, df=1). However, the Sex X Institution interaction was significant at the .05 level, F=5.82 (1,206). Comparisons of subgroup means by "protected" t test (18) yielded the following significant results, UF:UM, t=2.84, p<.01. UF:SF, t=1.97, p .05. This result suggested that urban females were more atuned to marijuana research findings than urban males or suburban females.

Nonsignificant F's were obtained when ANOVA was performed on the mean Eh-scores (harmful expectations) of the four subgroups.

In the analysis of variance performed on the Es-scores (social expectations) the only significant source of variation was Sex, F=4.53, (1,206; p<.05). Neither the effect of Institution, nor the interaction of Sex X Institution reached statistical significance (F<1). Pairwise comparison by "protected" t test yielded only one statistically significant result, namely, UM:UF, t=2.32, p<.01. The ob-

servation that men held more liberalized social expectations about marijuana than women seemed to hold true only for the urban situation. It should be noted that the mean Es-score for all 210 Ss was 3.80, SD 2.03 (see Table I) and considering that the highest possible Es-score was 6, students, generally, tended toward liberalized social views with respect to marijuana.

The third major concern of this inquiry was to explore the predicted differences in expectations about marijuana in relation to frequency of use, that is, regular users, occasional, and non-users. Table II reports means and standard deviations of expectation scores for the three categories of users.

Table II

Means and Standard Deviations of Expectation Scores for three Categories of Marijuana Users

(N=210)

Category			*Er-score		**Eh-score		***Es-score	
	N	%	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
non-user	66	31.4	9.39	3.40	7.44	2.95	2.58	2.00
occasional user	54	25.7	9.04	3.31	7.22	3.07	3.61	2.01
regular user	90	42.9	7.39	2.55	5.38	2.49	4.80	1.48

*Research expectation score
**Harmful expectation score
***Social expectation score

The first prediction assumed that regular users as compared to occasional or non-users, were likely to have fewer expectations that were in agreement with marijuana research findings (Er-score). This hypothesis was supported by the computed F ratio, $F=9.69$ $(2,207: p<.001)$. Comparisons of the Er-means by the "protected" t test method produced significant results at the .01 level for "non-users" vs "regular users", $t=3.78$; "occasional users" vs "regular users", $t=3.11$. No significant difference

was found between "non-users" vs "occasional users". Referring to Table II, note that "regular users" had the lowest mean Er-score, $\bar{X}$=7.39.

The second prediction asserted that regular users as compared to occasional or non-users were likely to hold fewer expectations of harmful effects of marijuana (Eh-score). Consistent with this prediction, significant differences were found among the mean Eh-scores of the three groups of users, $F=12.80$ $(2,207; p < .001)$. Further analysis by the "protected" t test revealed significant differences at the .01 level between "non-users" vs "regular users", $t=4.29$; "occasional users" vs "regular users", $t=3.83$. As was the case with the Er-scores, no difference was found between the mean Eh-scores of "non-users" vs "occasional users". Again referring to Table II, observe that "regular users" had the lowest mean Eh-score, $\bar{X}$=5.38. In light of these findings, it appears that regular marijuana users, as compared to occasional or non-users, were least likely to attribute deleterious effects to marijuana.

The third prediction stated that regular users tended

toward a more liberalized social view about the use of marijuana than occasional or non-users (Es-score). Results of an analysis of variance confirmed this predicted difference, $F=29.51$ $(2,207; p < .001)$. Once again the "protected" t test was used to make comparisons between each of the three mean Es-scores. Statistically significant values at the .01 level were found for "non-users" vs "regular users", $t=7.16$; "occasional users" vs "regular users", $t=3.84$; "non-users" vs "occasional users", $t=2.86$. As summarized in Table II, "regular users" had the highest mean Es-score, $\bar{X}=4.80$, "non-users" scored lowest, $\bar{X}=2.58$, whereas "occasional users" held a middle position, $\bar{X}=3.61$. It appears that with increased use of marijuana, social expectations about the drug became more liberal.

A final issue of this investigation was to examine factors in a student's background that were considered to influence his or her expectations about the effects of marijuana. Correlations between autobiographical variables and expectation scores were calculated.

The emerging picture suggests that individuals who

strongly disapproved of the use of marijuana seemed to have fewer misconceptions about the effects of the drug, were more accepting of harmful consequences associated with its use, and had fewer liberalized social expectations about marijuana. Furthermore, the substantial positive correlation between Er-score and Eh-score (r=.85) suggests that individuals who were aware of research findings seemed to acknowledge harmful effects of the drug. The lack of a significant relation between the Er-score and the Es-score was unexpected and points to a separation between expectation about the physiological and psychological effects of marijuana on one hand, and the social expectations about the drug, on the other.

Additional findings of interest were that students who reported higher incidents of marijuana use and knew a greater number of marijuana smokers, took a more liberal social stance vis à vis marijuana. Those who said they had difficulties in getting the drug had fewer liberalized social expectations about its use.

The t-tests were used to evaluate sex differences on selected background variables such as attitude toward

marijuana, experience with getting marijuana, experience with using marijuana, number of smokers one knew. Apparently, significant differences did indeed exist between males and females on each of the variables tested. Thus, the trend was for women to have a more disapproving attitude about marijuana (t=4.83, $p<.01$), report greater difficulties in obtaining the drug (t=2.12, $p<.05$), and use marijuana less frequently than men (t=3.61, $p<.01$). Also, females as compared to males seemed to know significantly fewer people who smoke marijuana (t=3.53, $p<.01$).

The data showed that "to seek pleasure" was the most frequent reason (78.1%) for using marijuana with no significant difference between men and women.

DISCUSSION

In interpreting the data, it is important to keep in mind certain limitations of this research. First, the questionnaire items were derived from selected marijuana studies. Although selection was guided by repeated research evidence, generalizability of research findings is reduced because effects of marijuana are influenced by such variables as the quality of the drug, dose taken, fre-

quency of use, and way of administration (intravenous, subcutaneous, inhalation, oral). Another possible limitation was reliance on self-resports which by their very nature, present a problem of validity. Moreover, the sample was relatively small in size and not necessarily representative of the total college population.

Results of this investigation lend reasonable support to the notion that congruency does exist between an individual's expectations about the effects of marijuana and overt behavior that reflects acceptance of these expectations, i.e., use of the drug. As was predicted within the framework of cognitive consistency theory, results confirm differences in marijuana expectations by non-users, occasional, and regular users. Regular users were least atuned to marijuana research and least receptive to deleterious effects related to the drug. Interestingly, non-users and occasional users did not differ in their expectations about marijuana research findings or expectations of harmful effects of the drug.

The significant differences in social expectations among the three categories of users led to the speculation that with increased use of the drug students became more liberal in their social views about marijuana. Liberalized social

expectations seemed related to a favorable attitude toward the use of marijuana, knowing people who smoke marijuana, and having access to the drug. The finding of sex differences, namely, that women were more disapproving of the use of marijuana than men was consistent with evidence presented by Fago & Sedlacek (19).

Of particular significance is the information that students thought the use of marijuana should not be disregarded by society, but rather be dealt with as an educational issue. These observations were in line with results of an earlier study by Yankelovich (2) that students were seeking ways to control drug use.

Implications

Although the importance of expectations about the effects of marijuana has been known from past research, this knowledge needs application in evaluation and/or modification of marijuana usage. It is recommended that expectations about marijuana be taken into account so as to provide personal relevance of drug education. The position here is to develop programs that have built into them as key features a) evaluation of the individual's expectations about marijuana effects,

b) experiences that aim at influencing existing expectations and are structured with the notion of cognitive balance in mind, and c) student involvement with marijuana research.

There is need for longitudinal data to determine the impact of these programs on marijuana expectations and related behavior. In order to expand knowledge of the link between expectations and the use of the drug, further research might address itself to the following questions: "Are expectations about marijuana indicative and/or predictive of marijuana use?" "Would exposure to information contrary to existing expectations affect subsequent use of marijuana?"

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